Application Number 10/788,695
Amendment dated March 18, 2008
Response to Office Action mailed January 2, 2008

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended):   A parallel download system executing on a client computer to control download of data from a plurality of source servers in parallel the system comprising:

a source scheduler to generate a download schedule to control which source servers will be downloaded from at a current point in time, wherein each of the servers stores a copy of at least a portion of a file containing data;

a prioritization scheduler that tracks the latency and throughput of all channels to the source servers while downloading at least a portion of the data of the file from two or more of the plurality of source servers in parallel, wherein based on the latency and throughput of the channels the prioritization scheduler and dynamically adjusts the download schedule while downloading the data in parallel to control download performance; and

an I/O dispatcher to produce an output stream to present the downloaded data to one or more external applications or a user.

Claim 2 (Original):   The parallel download system of claim 1, wherein the source scheduler keeps track of information about each source server and uses that information to decide which source servers to download from.

Claim 3 (Currently Amended):   The parallel download system of claim 1, further comprising a data prioritizer that determines the priority of the data within the file to be scheduled, wherein the data prioritizer specifies an ordering of the data within the file from a highest priority data to a lowest priority data, and wherein different portions of the file are downloaded in parallel from the two or more of the plurality of servers in accordance with the ordering of the data within the file as specified by the data prioritzer and the download schedule as dynamically adjusted by the prioritization scheduler.

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Claim 4 (Currently Amended):   The parallel download system of claim 3, wherein the prioritization scheduler adjusts the download schedule with respect to the different servers while maintaining the prioritization the order in which that the data within the file will be received.

Claim 5 (Original):   The parallel download system of claim 1, further comprising one or more channel adapters to translate encoded information from a first format used to transfer the information across a channel to a second format desired for a download.

Claim 6 (Original):   The parallel download system of claim 1, further comprising a control interface that allows external applications or users to control the behavior of the parallel download system.

Claim 7 (Currently Amended):   The parallel download system of claim 1, further comprising a proportional allocator to determine[[s]] a proportion of the data that will be transferred from a channel that is currently being scheduled.

Claim 8 (Currently Amended):   The parallel download system of claim 1, further comprising a bulk scheduler to determine[[s]] which bytes of the data within the file will be scheduled.

Claim 9 (Original):   The parallel download system of claim 1, further comprising an advanced scheduler that integrates with the proportional allocator to allow data to be allocated during a different time interval than a current time interval.

Claim 10 (Original): The parallel download system of claim 9, wherein the advanced scheduler features a sub-interval smoothing component that reduces the burstiness of the availability of high priority data with the proportional allocator.

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Claim 11 (Original):   The parallel download system of claim 1, further comprising a constraint scheduler to ensure that the source scheduler does not attempt to retrieve data that a source server cannot provide.

Claim 12 (Original):   The parallel download system of claim 1, further comprising one or more channel receivers to read the data from a respective channel and writes it to an I/O dispatcher.

Claim 13 (Original):   The parallel download system of claim 1, further comprising an integrity verification engine to determine that the desired data is received intact and that none of the channels were providing data that is either corrupt or a different version of the content that is desired.

Claim 14 (Currently Amended):   The parallel download system of claim 13, wherein the integrity verification engine utilizes an iterative hash construct, ~~such as a Merkle Hash Tree~~.

Claim 15 (Original):   The parallel download system of claim 13, further comprising a corruption repair engine to repair data corruption detected by the integrity verification engine.

Claim 16 (Currently Amended):   The parallel download system of claim 1, further comprising one or more channel connectors to establish a new channel to the scheduled source server.

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Claim 17 (Original): The parallel download system of claim 1, wherein the source scheduler ranks the source servers according to one or more of:

external ranking input received from a user or an administrator or an external ranking service;

a throughput associated with each source server;

a latency associated with each source server;

a number of network hops to the source server from the parallel download system;

a geographical location of each source server relative to the parallel download system; and

a channel cost associated with the channel from the parallel download system to each source server.

Claim 18 (Original): The parallel download system of claim 3, wherein the prioritization scheduler schedules ranges of bytes to be downloaded.

Claim 19 (New): The parallel download system of claim 14, wherein the iterative hash construct comprises a Merkle Hash Tree.

Claim 20 (New): The parallel download system of claim 1, wherein different portions of the file are downloaded in parallel from the two or more of the plurality of servers in accordance with the download schedule.

Claim 21 (New): The parallel download system of claim 3, wherein the data prioritizer specifies the ordering of the data within the file from the highest priority data to the lowest priority data by adjusting the ordering of the data within the file during the download of the different portions of the file from the two or more plurality of servers.

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Claim 22 (New):   The parallel download system of claim 21, further comprising one or more external applications that are attempting to access the data within the file, wherein the data prioritizer adjusts the ordering of the data within the file based on which one or more external applications are attempting to access the data within the file.

Claim 23 (New):   The parallel download system of claim 21, further comprising a corruption repair engine that detects and repairs corruption in previously downloaded portions of the data within the file, wherein the data prioritizer adjusts the ordering of the data within the file based on the detected corruption that the corruption repair engine will repair.

Claim 24 (New):   The parallel download system of claim 23, wherein the data prioritizer assigns a higher priority to the data within the file that the corruption repair engine will repair.

Claim 25 (New):   The parallel download system of claim 21, wherein the data prioritizer assigns priority based on the number of servers from which the data is available for download.

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